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*The Varying Ratio between Gold and Silver.**By Frederick Prime.*

Mr. Prime made some remarks on the varying ratio between gold and silver. Between 1637 and 1861 the ratio of silver to gold varied between 1 : 14.14 (1760) and 1 : 16.25 (1813). But in 1862 silver reached a value from which there has been a steady decrease, with slight exceptions, up to the present time. The ratio for this period * has been as follows :

	GOLD.	SILVER.		GOLD.	SILVER.
1862.....	1	: 15.35	1878.....	1	: 17.94
1863.....	1	: 15.37	1879.....	1	: 18.40
1864.....	1	: 15.37	1880.....	1	: 18.05
1865.....	1	: 15.44	1881.....	1	: 18.16
1866.....	1	: 15.43	1882.....	1	: 18.19
1867.....	1	: 15.57	1883.....	1	: 18.64
1868.....	1	: 15.59	1884.....	1	: 18.57
1869.....	1	: 15.60	1885.....	1	: 19.41
1870.....	1	: 15.57	1886.....	1	: 20.78
1871.....	1	: 15.57	1887.....	1	: 21.13
1872.....	1	: 15.63	1888.....	1	: 21.90
1873.....	1	: 15.92	1889.....	1	: 22.09
1874.....	1	: 16.17	1890.....	1	: 19.76
1875.....	1	: 16.59	1891.....	1	: 20.93
1876.....	1	: 17.88	1892.....	1	: 23.72
1877.....	1	: 17.22	1893.....	1	: 26.49

The percentage of production of the two metals since 1831 is as follows, given in values, not in weights :

	GOLD.	SILVER.		GOLD.	SILVER.
1831-40.....	35.2	64.8	1886.....	46.8	53.2
1841-50.....	52.9	47.1	1887.....	46.0	54.0
1851-55.....	78.3	21.7	1888.....	43.9	56.1
1856-60.....	78.1	21.9	1889.....	44.2	55.8
1861-65.....	72.9	27.1	1890.....	42.3	57.8
1866-70.....	70.0	30.0	1891.....	42.4	57.6
1871-75.....	58.5	41.5	1892.....	42.5	57.5
1876-80.....	53.0	47.0	1893.....	42.7	57.3
1881-85.....	45.5	54.5			

In consequence of the demonetization of silver and the consequent increased demand for gold, which has increased in value judging by its increased purchasing power, the output of the world in this metal has increased materially.

In 1891 there were produced...196,586 kilograms = \$130,450,000
 In 1893 " " ...236,574 " = 157,228,100

*Twenty-second Annual Report Director of the Mint, 1894.

Africa has most markedly increased its output, and in 1893 became the third producing portion of the world, the output being almost entirely in South Africa. While in 1891 Africa produced 23,687 kilograms = \$15,742,400, this had increased, in 1893, to 44,096 kilograms = \$29,305,800, and it is probable this output will be greatly increased in the near future.

Of the remaining large gold-producing countries the output for 1893 is estimated to be as follows :

United States.....	54,100 kilograms =	\$35,955,000
Australia.....	53,698 “ =	35,688,600
Russia.....	39,805 “ =	26,454,400

It is thus apparent that Africa has surpassed Russia.

With the greatly increased output of gold, the fields known to be rich but still undeveloped (South Africa, Australia and South America), and with the downward tendency of silver, it seems impossible that bi-metalism can exist for any length of time in the near future, even by the consent of all the nations of the globe. Gold may be made the circulating medium, or silver may be ; but with the continual disparity in value between the two metals, which is not constant but varying daily, the two can only coëxist in subsidiary coinage, where they are mere tokens.

The fact is frequently lost sight of that gold and silver are only articles of merchandise like wheat, cotton or iron, and intrinsically are of less value than any of the three latter. A coin only means that the country whose stamp it bears guarantees it to be of a certain weight and to contain a certain percentage of gold or silver. Common agreement has made these articles of merchandise the means of paying balances, as a matter of convenience.

The Significance of the Jugal Arch.

By Daniel Denison Slade.

(Read before the American Philosophical Society, March 15, 1895.)

It is difficult to explain why that portion of the mammalian cranium which presents so prominent and striking a feature, even to the most careless observer, as does the jugal or zygomatic arch, should not have been considered worthy of more extended scientific notice than it has received. Cuvier, in his admirable treatise, *Anatomie Comparée*, seems to have been the only writer, familiar to us, who has comprised the anatomy and physiology of this region in any lengthy description.

While the present paper does not pretend to have, by any means, exhausted the subject, it claims to have brought together for the first time, under the light of modern science, a concise statement of the chief modifications which the arch undergoes in the various orders of the Mammalia.